

REMARKS

Referring to the Office Action, Claims 1 - 28 directed at a replaceable pressure sensor insert are pending in the within Application. Of these Claims, Claims 5 - 28 have been objected to as being dependent upon a rejected base claim, but are considered allowable if rewritten in independent form.

Claims 1 - 4 have been rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,367,545 to Van Buskirk et. al. In this regard, independent Claim 1 has been amended to clarify that the components of the Claim comprise the “pressure sensor insert” which is removably connectable with “an insert carrier.” It is respectfully submitted that the objection of the Examiner is overcome by this clarifying amendment to Claim 1, along with the remarks that follow.

As stated, the Applicant’s invention relates particularly to a replaceable pressure sensor insert which is adapted for removable connection with an insert carrier, which is preferably a downhole production or drilling tool or apparatus. The pressure sensor insert is adapted or configured to be removably connected with any compatible insert carrier. Thus, **the pressure sensor insert, and its particular components, have a particular structure or configuration and are arranged to have a particular relationship with the components of the insert carrier, which is separate or distinct from the pressure sensor insert itself.** (Page 1, lines 6 - 8; Page 3, lines 16 - 25 of the Application). The particular structure and configuration of the pressure sensor insert and its relationship with the insert carrier permit the pressure sensor insert to be readily, or relatively easily, connected with and removed from the insert carrier, for the reasons generally discussed in the Application (Page 3, line 23 - Page 6, line 2 of the Application).

As claimed in amended Claim 1, the pressure sensor insert is comprised of:

- (a) a housing, wherein the housing defines an exterior of the housing and wherein the housing defines an interior of the housing;
- (b) a pressure sensor connected with the housing such that the pressure sensor is capable of sensing an ambient pressure at the exterior of the housing;

- (c) an electronics assembly contained within the interior of the housing and electrically connected with the pressure sensor;
- (d) a first insert mounting component adapted to be removably connectable with a second insert mounting component associated with the insert carrier in order to facilitate connection and replacement of the insert;
- (e) a housing sealing mechanism for sealing the insert relative to the insert carrier; and
- (f) a sensor sealing mechanism for sealing the pressure sensor relative to the housing.

Referring to the Office Action and to Van Buskirk et. al., it appears that the Examiner may have mixed the identification of the components comprising the pressure sensor insert as compared with the identification of the components comprising the insert carrier. In other words, it is not completely clear which components of the tool of Van Buskirk et. al. are considered to comprise the pressure sensor insert in contrast to the components which comprise the insert carrier.

However, it is respectfully submitted that upon a detailed analysis of the features of Van Buskirk et. al. identified by the Examiner as comprising the various components of the Applicant's invention that all of components (a) - (f) of amended Claim 1 are not described therein. Rather, although various components may be generally discussed in Van Buskirk et. al., several of the components and their particular structure, and specifically components (d) - (f), are not described or suggested in any manner whatsoever.

The Examiner states that "Van Buskirk et. al. discloses in figures 1 - 16 a replaceable pressure sensor insert (82) adapted for removable connection with an insert carrier." No reference number is provided regarding the component of the tool of Van Buskirk et. al. which the Examiner considers to be the "insert carrier." Reference number (82), indicated to be the "replaceable

pressure sensor insert," refers to a recess defined within a top sub (70) for receiving a pressure sensor.

Referring to Figures 6 and 7 of Van Buskirk et. al., Van Buskirk et. al. describes a tool comprising a telemetry housing (28) threadably connected to top sub (70) at thread (72) and sealed thereto with O-rings (74). Mount (76) is connected with a downhole side of top sub (70) in order to "locate and maintain the electrics in position." Mount (76) includes O-ring (78) to seal the mount (76) with the adjacent telemetry housing (28). (Column 3, lines 34 - 42 of Van Buskirk et. al.). Further, Column 3, lines 43 - 51 of Van Buskirk et. al. states:

" The telemetry and control electronics from within telemetry housing 28 are connected to the drive components beyond the compensating piston housing through top sub 70 and a high pressure connector 80...

It should be noted that an ambient pressure sensor is preferably mounted in sensor recess 82 in top sub 70. Sensor recess 82 is open to environmental pressure through conduit 84 and is useful in the invention to monitor the well pressure."

The tool is further comprised of a compensating piston housing (90) which is threadably connected with an uphole side of top sub (70), as shown in Figure 7. Thus, the telemetry housing (28), top sub (70) and compensating piston housing (90) are threadably connected together to comprise the setting tool of Van Buskirk et. al., wherein an ambient pressure sensor is mounted in a sensor recess (82) defined by the top sub (70).

With respect to amended Claim 1, components (a), (b) and (c), the pressure sensor insert is comprised of a housing, a pressure sensor connected with the housing such that the pressure sensor is capable of sensing an ambient pressure at an exterior of the housing and an electronics assembly contained within the interior of the housing and electrically connected with the pressure sensor.

Referring to the Office Action, the Examiner states that Van Buskirk et. al. discloses a housing (28), a pressure sensor (in 82) connected with the housing such that the pressure sensor is capable of sensing an ambient pressure (via 84) at the exterior of the housing and an electronics

assembly (44, 46, 60, 62) contained within the interior of the housing (28) and electrically connected with the pressure sensor.

Thus, according to the analysis of the Examiner, Van Buskirk et. al. discloses components (a) - (c) of the pressure sensor insert claimed by the Applicant, and particularly identifies both the telemetry housing (28) and the top sub (70) containing the pressure sensor as forming components of the pressure sensor insert.

With respect to amended Claim 1, component (d), the pressure sensor insert of the Applicant is further comprised of “a first insert mounting component adapted to be removably connectable with a second insert mounting component associated with the insert carrier in order to facilitate connection and replacement of the insert.”

Referring to the Office Action, the Examiner states that Van Buskirk et. al. discloses “a first insert mounting component (76) adapted to be removably connectable with a second insert (90) mounting component associated with the insert carrier...”

Thus according to analysis of the Examiner, the mount (76) of Van Buskirk et. al. is identified as providing the first insert mounting component comprising the pressure sensor insert while the compensating piston housing (90) is identified as providing the second insert mounting component associated with the insert carrier. Again, no number is provided for the insert carrier and it is not clear what features of the tool of Van Buskirk et. al. are considered to disclose the insert carrier.

However, the Examiner considers the compensating piston housing (90) to be associated with the insert carrier. Further, the compensating piston housing (90) is connected between the top sub (70) and the motor housing (109). Accordingly, pursuant to the Examiner’s analysis, it necessarily follows that the insert carrier must be considered to be comprised of one or both of the compensating piston housing (90) and the motor housing (109).

In any event, it is respectfully submitted that Van Buskirk et. al. does not disclose, describe or suggest a pressure sensor insert comprising “a first insert mounting component adapted

to be removably connectable with a second insert mounting component associated with the insert carrier.” More particularly, it is respectfully submitted that the mount (76) identified as the “first insert mounting component” is not removably connectable with the compensating piston housing (90) identified as the “second insert mounting component.”

Rather, as discussed above, the mount (76) is connected via screws, as shown in Figure 6, with the downhole side of the top sub (70), wherein the top sub (70) is considered by the Examiner to comprise the pressure sensor insert. In other words, the mount (76) is removably connected with another component of the pressure sensor insert. The mount (76) is not removably connectable with the compensating piston housing (90), but is spaced therefrom by the top sub (70).

Accordingly, pursuant to the Examiner’s analysis, Van Buskirk et. al. does not disclose a first insert mounting component (comprising the pressure sensor insert) removably connectable with a second insert mounting component (associated with the insert carrier), as claimed by the Applicant.

With respect to amended Claim 1, component (e), the pressure sensor insert of the Applicant is further comprised of “a housing sealing mechanism for sealing the insert relative to the insert carrier.”

Referring to the Office Action, the Examiner states that Van Buskirk et. al. discloses “a housing sealing mechanism (74, 78) for sealing the insert relative to the insert carrier.” However, based upon the Examiner’s analysis of the various components as set out above, the seals (74, 78) identified by the Examiner do not seal between the pressure sensor insert and the insert carrier.

As indicated, the Examiner has identified the “housing sealing mechanism” as being disclosed by O-rings (74) and (78) of Van Buskirk et. al. as shown in Figure 6. As discussed above, O-ring (74) provides a seal between the telemetry housing (28) and the top sub (70) at thread (72) (Column 3, lines 34 - 36 of Van Buskirk et. al.). Pursuant to the Examiner’s analysis discussed previously, both the telemetry housing (28) and the top sub (70) are considered to form the pressure sensor insert. Accordingly, O-ring (74) seals between the components of the pressure sensor insert and does not seal the pressure sensor insert relative to the insert carrier.

Similarly, O-ring (78) surrounds the mount (76) and seals against the telemetry housing (28) (Column 3, lines 40 - 42 of Van Buskirk et. al.). Pursuant to the Examiner's analysis discussed previously, both the mount (76) (identified by the Examiner as providing the first insert mounting component of the pressure sensor insert) and the telemetry housing (28) are considered to form the pressure sensor insert. Accordingly, O-ring (78) also seals between the components of the pressure sensor insert and does not seal the pressure sensor insert relative to the insert carrier.

In summary, both O-rings (74, 78) identified by the Examiner as disclosing the Applicant's "housing sealing mechanism" provide a seal between various components comprising the pressure sensor insert. Neither of the O-rings (74, 78) seals the pressure sensor insert relative to the insert carrier.

Accordingly, it is respectfully submitted that Van Buskirk et. al. does not describe, disclose or suggest in any manner whatsoever "a housing sealing mechanism for sealing the insert relative to the insert carrier" as claimed by the Applicant.

Finally, with respect to amended Claim 1, component (f), the pressure sensor insert of the Applicant is further comprised of "a sensor sealing mechanism for sealing the pressure sensor relative to the housing."

Referring to the Office Action, the Examiner states that Van Buskirk et. al. discloses "a sensor sealing mechanism (80) for sealing the pressure sensor relative to the housing." However, based upon the Examiner's analysis of the various components as set out above, the sensor sealing mechanism (80) identified by the Examiner does not seal between the pressure sensor and the housing.

As indicated, the Examiner has previously identified the housing of the pressure sensor insert as being disclosed by the telemetry housing (28) of Van Buskirk et. al., while the pressure sensor is contained within the sensor recess (82) of the top sub (70).

Referring to Figures 6 and 7, reference number (80) of Van Buskirk et. al. refers to a high pressure connector. The high pressure connector (80) provides a connection between the telemetry and the control electronics within the telemetry housing (28) and “the drive components beyond the compensating piston housing” (90). More particularly, the high pressure connector (80) is contained within the top sub (70). Further, the O-rings (no reference number provided) associated with the exterior surface of the high pressure connector (80) provide a seal between the exterior surface of the high pressure connector (80) and the interior surface of the top sub (70). Accordingly, the high pressure connector (80) and the O-rings associated therewith seal the interior of the top sub (70) or provide a seal between components of the pressure sensor insert. The high pressure connector (80) does not seal the pressure sensor (within 82) relative to the telemetry housing (28).

In addition, as indicated, the pressure sensor is contained within the sensor recess (82) of the top sub (70). The pressure sensor itself is not shown in the Figures of Van Buskirk et. al. and no sealing mechanism is described or shown. Rather, when in position, the pressure sensor is surrounded by the sensor recess (82) of the top sub (70) and maintained in position by the mount (76). Although the top sub (70) and the mount (76) are sealed relative to the housing (28), no sealing mechanism is provided with respect to the pressure sensor, and particularly, no sealing mechanism is provided between the pressure sensor (within 82) and the housing (28).

Thus, it is respectfully submitted that Van Buskirk et. al. does not describe, disclose or suggest in any manner whatsoever “a sensor sealing mechanism for sealing the pressure sensor relative to the housing” as claimed by the Applicant.

In summary, it is respectfully submitted that Van Buskirk et. al. does not describe, disclose or suggest in any manner whatsoever the Applicant’s pressure sensor insert as claimed in amended Claim 1, and particularly the components claimed in amended Claim 1(d), (e) and (f).

It is therefore respectfully submitted that amended independent Claim 1 is allowable and allowance of amended independent Claim 1 is therefore respectfully requested.

Dependent Claims 2 - 28 all depend directly or indirectly from amended independent Claim 1. It is respectfully submitted that these dependent Claims are allowable for the distinctions

defined therein as well as for the reasons supporting the allowability of amended independent Claim 1, and allowance of dependent Claims 2 - 28 is therefore also respectfully requested.

Further, pursuant to Claim 3, the electronics assembly is comprised of "a memory for storing the data generated by the insert." The Examiner simply states that this feature is disclosed by Van Buskirk et. al. However, it is respectfully submitted that this feature is not described, disclosed or suggested by the tool of Van Buskirk et. al. In fact, Van Buskirk et. al. clearly teaches away from this feature.

The tool of Van Buskirk et. al. is provided for sensing a number of parameters, wherein "all of these parameters are communicable directly to the surface due to the inclusion of a communication function through the controller..." (Column 2, lines 1 - 11 of Van Buskirk et. al.). Thus, "corrective measures can be made in real time to avoid loss of time or money" (Column 2, lines 19 - 20 of Van Buskirk et. al.). Van Buskirk et. al. does not describe or suggest the pressure sensor insert comprising a memory for storing data.

In view of the foregoing amendments and remarks, it is submitted that this Application is in condition for allowance and allowance is respectfully requested.

Respectfully submitted,

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